

TOP100-4

TOPSwitch[®] Family

Three-terminal Off-line PWM Switch



Product Highlights

Low Cost Replacement for Discrete Switchers

- 20 to 50 fewer components - cuts cost, increases reliability
- Source-connected tab and Controlled MOSFET turn-on reduce EMI and EMI filter costs
- Allows for a 50% smaller and lighter solution
- Cost competitive with linears above 5 W

Up to 90% Efficiency in Flyback Topology

- Built-in start-up and current limit reduce DC losses
- Low capacitance 350 V MOSFET cuts AC losses
- CMOS controller/gate driver consumes only 6 mW
- 70% maximum duty cycle minimizes conduction losses

Simplifies Design - Reduces Time to Market

- Supported by many reference designs
- Integrated PWM Controller and 350 V MOSFET in a industry standard three pin TO-220 package
- Only one external capacitor needed for compensation, bypass and start-up/auto-restart functions

System Level Fault Protection Features

- Auto-restart and cycle by cycle current limiting functions handle both primary and secondary faults
- On-chip latching thermal shutdown protects the entire system against overload

Highly Versatile

- Implements Buck, Boost, Flyback or Forward topology
- Easily interfaces with both opto and primary feedback
- Supports continuous or discontinuous mode of operation
- Specified for operation down to 16 V DC input

Description

The TOPSwitch family implements, with only three pins, all functions necessary for an off-line switched mode control system: high voltage N-channel power MOSFET with controlled turn-on gate driver, voltage mode PWM controller with integrated 100 kHz oscillator, high voltage start-up bias circuit, bandgap derived reference, bias shunt regulator/error amplifier for loop compensation and fault protection circuitry. Compared to discrete MOSFET and controller or self oscillating (RCC) switching converter solutions, a TOPSwitch integrated circuit can reduce total cost, component count, size, weight and at the same time increase efficiency and system reliability. These

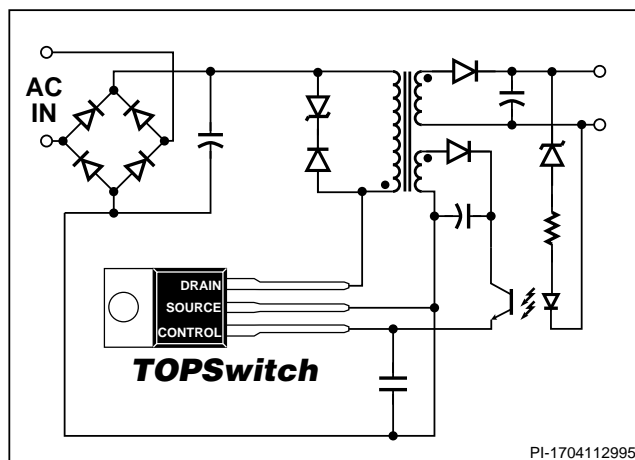


Figure 1. Typical Application.

TOPSwitch SELECTION GUIDE			
ORDER PART NUMBER	OUTPUT POWER RANGE		
	FLYBACK		PFC/ BOOST
	100/110 V VAC	48 V DC	100/110 VAC
TOP100YAI*	0-20 W	0-6.8 W	0-30 W
TOP101YAI*	15-35 W	6-12 W	25-50 W
TOP102YAI*	20-45 W	8.5-17 W	35-70 W
TOP103YAI*	25-55 W	11-22 W	45-90 W
TOP104YAI*	30-60 W	12-25 W	55-110 W

* Package Outline: Y03A

devices are intended for 100/110 VAC off-line Power Supply applications in the 0 to 60 W range and power factor correction (PFC) applications in the 0 to 110 W range. They are also well suited for Telecom, Cablecom and other DC to DC converter applications in the 0-25 W range (see Design Note DN-16).